

DOCUMENT RESUME

ED 309 008

RC 017 134

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TITLE The Status of Health Care in Appalachian Kentucky.
Appalachian Data Bank Report #4.
INSTITUTION Kentucky Univ., Lexington. Appalachian Center.
SPONS AGENCY Chessie System, Cleveland, OH.
PUB DATE Jul 86
NOTE 35p.; Map on page 3 contains small type.
AVAILABLE FROM Appalachian Center, University of Kentucky, 641 S.
Limestone, Lexington, KY 40506-0333 (\$3.00).
PUB TYPE Reports - Research/Technical (143) -- Statistical
Data (110)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Health Care Costs; *Health Facilities; Health
Services; Medical Care Evaluation; Medical Services;
*Rural Areas; Rural Development; Rural Economics
IDENTIFIERS *Appalachia; Appalachian Regional Commission DC;
*Kentucky

ABSTRACT

In the early 1960's, the Appalachian Regional Commission (ARC) established a goal to make health care more accessible to the people of the mountains. Today, a primary health care facility is within a 30 minute drive of nearly all Appalachian counties. There has also been a substantial, but still inadequate increase in health care professionals in the region. Health care is more physically accessible than in 1964; however, cutbacks in government spending, combined with an economic depression in the coal fields, threatens to create economic barriers to the continued improvement of health conditions in Appalachia in the 1980's. The ARC stated in its 1985 report that it will be leaving the responsibility of maintaining and improving Appalachia's health care system to other federal, state, and local institutions. The weak tax base of most Appalachian counties in Kentucky significantly reduces the ability of local communities to provide medical care for their citizens. Funding for both federal and state health care programs face continued cutbacks. High unemployment and underemployment hamper the ability of individuals to pay health care costs from their own pockets or through job-related health benefits. Local health care facilities often operate on a shoestring budget, patched together with government and private money, volunteerism, and make-do medicine. Mortality rates show that eastern Kentuckians die younger than central and western Kentuckians, and, under current economic conditions, have little prospect for improved health care in the future. Teenage fertility rates in eastern Kentucky are one and one-half to two times the national average. Infant mortality rates in the region continue to be higher than the national and state average. Appendices contain four tables and six maps. (ALL)

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THE STATUS OF HEALTH CARE
IN APPALACHIAN KENTUCKY

Appalachian Data Bank Report #4

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THE STATUS OF HEALTH CARE
IN APPALACHIAN KENTUCKY

Appalachian Data Bank Report #4

July 1986

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This report was produced at the Appalachian Center, University of Kentucky, as a part of the Appalachian Data Bank, a project supported by a grant from the Chessie System. For further information about the Data Bank or the Appalachian Center, contact Dr. Ronald D Eller, Director, The Appalachian Center, 641 S. Lime, University of Kentucky, Lexington, Kentucky 40506-0333, or telephone (606) 257-4852.

HIGHLIGHTS

- * Appalachian Kentuckians continue to have less access to health care than others in the state. The shortage of health care personnel is especially serious.
- * Teenage fertility rates are exceptionally high in eastern Kentucky counties: one and one-half to two times the national average.
- * Infant mortality rates in the region continue to be higher than the national and state average and have actually risen in the last few years.
- * Statistics on mortality rates indicate that people in the easternmost Kentucky counties die at younger ages than those in the rest of the state. Those 75 and over may be leaving the region shortly before death, creating artificially low mortality rates in the region for degenerative diseases.
- * Rising economic problems in the region may be contributing to poor health care.

This report on health care in Appalachian Kentucky is a product of the APPALACHIAN DATA BANK, a project of the Appalachian Center at the University of Kentucky. The purpose of the Appalachian Data Bank is to collect and disseminate information on education, unemployment, social services, and economic development in the Central Appalachian region. This report is the fourth in a series to be produced by the Data Bank. The data in this report have been extracted from the 1980 U.S. Census and the Kentucky Department for Vital Statistics.

INTRODUCTION

In 1964, the newly formed President's Commission on Appalachia conducted a survey of the health status and needs of people in the Appalachian region. Statistics produced by this survey were grim. Death from infectious disease was 33% higher than the national average and infant mortality rates were twice the national average (Appalachia, 1985:22). Furthermore, access to medical care was extremely limited due to the high ratio of patients to health care personnel, the low number of hospitals and clinics, and inadequate transportation to existing facilities.

Over the next twenty years the Appalachian Regional Commission (ARC) would spend more than 552 million dollars on health care in the region. During the 1970s, an improved economic picture brought on by a boom in the coal industry contributed as well to better economic access to health care in the mountains. However, that boom collapsed in the 1980s throwing much of central Appalachia into a deep recession characterized by rising poverty and unemployment. Since 1981, the ARC has significantly reduced health care funding as a result of major federal budget cuts and administrative proposals to phase out the ARC program. The net result is that health care funding in Appalachia is being reduced at the same time the region is suffering an eco-

nomie recession. What is the effect of this one-two punch at health care in the region?

This report attempts to examine health care statistics in Kentucky from 1980 to 1984. This period has seen both the reduction of ARC and other federal funding and the economic consequences of recession in the coal fields.

Statistics for this report are based on information from Kentucky's Department for Vital Statistics and the 1980 U. S. Census. Statistics from other Appalachian states are not included because they are gathered and coded under individual state guidelines and thus lack the uniformity necessary for valid statistical comparisons.

In this report, Kentucky's counties have been divided into three areas for the purposes of comparison: the central Appalachian region of eastern Kentucky, as identified in the classic Ford study (Ford, 1962); a "fringe" area along the western border of Appalachian Kentucky, consisting of those counties designated as Appalachian by the ARC but not by the Ford study; and the non-Appalachian balance-of-state area. The Appalachian fringe area was analyzed separately because these counties are generally closer to major highways and generally have greater access to medical care in metropolitan areas. (See map of boundaries and counties in each area on page 3.)

KENTUCKY

**Ford
Boundary**

7

HEALTH CARE ACCESS

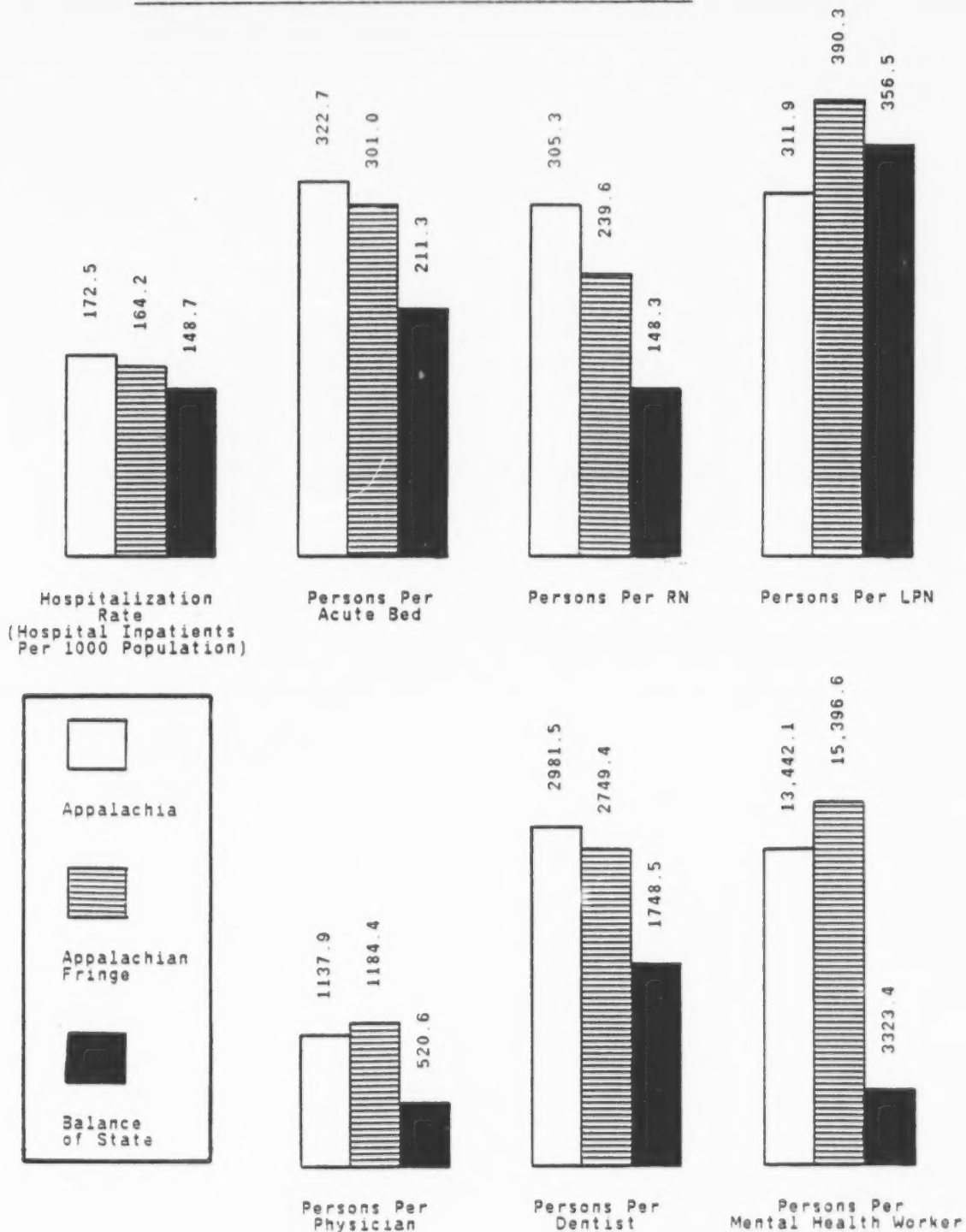
Although ARC programs have sought to place primary health care within a thirty-minute drive of nearly all Appalachians (Appalachia, 1985:22), eastern Kentuckians still lag far behind others in the state in the ratio of health care personnel to the population. In some categories, Appalachian Kentuckians have access to only half the number of health care personnel available to others in the Commonwealth. (See Table 1 in Appendix I.)

This is especially striking and significant in the area of primary care specialists. This category includes family practitioners, obstetrician/gynecologists, and pediatricians. As shown on Table 1, both the more rural Appalachian counties and the Appalachian fringe region have only about half the number of primary care physicians found in the balance of state area. While there is a primary care physician for every 1,124 people in the rest of the state, there is only one primary care physician for approximately 1,900 people in the Appalachian counties. It should be noted here that high physician/population ratio is a severe problem in all of Kentucky's rural counties and not just those in Appalachia. However since the easternmost portion of the state is generally its most rural, the problem is most concentrated in the Appalachian counties. (See Table 4 in Appendix I and Maps 3 and 4 in Appendix II.)

Table 1 also shows that far fewer licensed nurses practice in the easternmost counties and the Appalachian fringe area. While the balance of state area has one nurse for every 148 people, the eastern counties have only one nurse for every 305 people and the fringe counties have only one nurse for every 239 people. There are also one third fewer dentists in the mountain region and, finally, while the hospitalization rate is somewhat higher for people in the Appalachian counties, there are far fewer hospital beds available. (See Graph 1 on page 6.)

It is obvious from these statistics that Appalachian Kentuckians have less access to medical personnel and facilities than most other Kentuckians. Does this lack of access result in reduced health status for mountain people? Information gathered for this report indicates that health problems in Appalachian counties are indeed more serious than in other parts of the state and that these problems start at the very beginning of life with extremely high numbers of teenagers having babies.

GRAPH 1 Health Care Access by Region, 1984



(Not drawn to a common scale)

MATERNAL AND INFANT HEALTH CARE AND STATUS

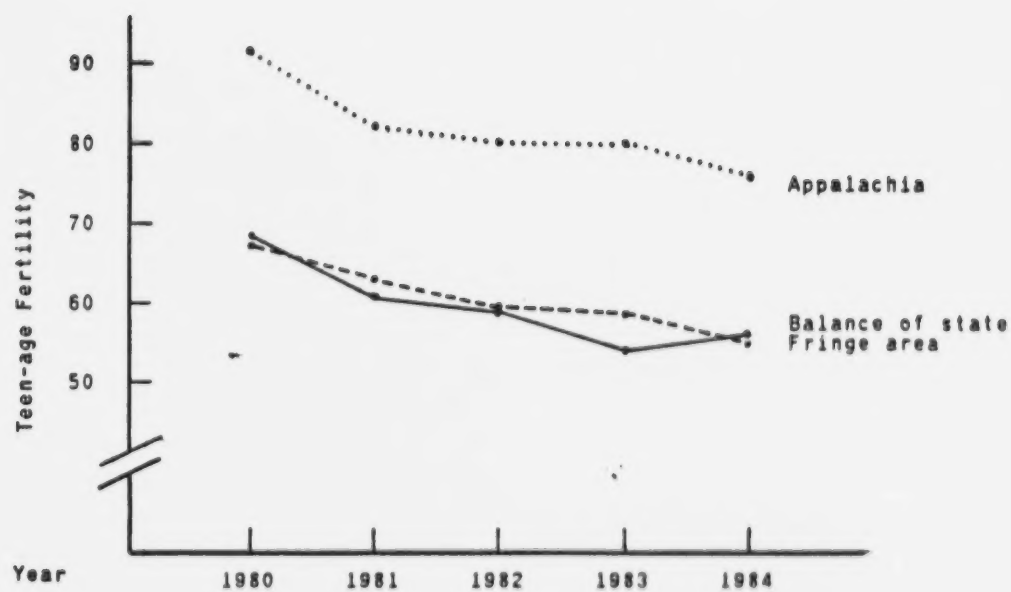
Among all medical indicators, the pregnancy rate among eastern Kentucky women aged 15-19 is the most striking. In the years between 1980 and 1984, as shown on Graph 2 on page 8 and Table 2 in Appendix I, teenaged women in the rural Appalachian counties of Kentucky had an average fertility rate of 81.8 per 1000. This compares with 60.7 for the fringe area of Appalachia, 59.8 in the rest of the state and 52.9 nationwide. Even though teenage fertility rates have been falling in the Appalachian counties, just as they have across the state and the nation, the fact that they remain close to twice the national average indicates very serious problems in both the medical and social arenas. (To compare data by county, see Table 3 in Appendix I and Map 3 in Appendix II.)

While fertility rates are much higher in eastern Kentucky, the number of women in the area seeking prenatal care is lower. In fact, when rates are compared for prenatal care, it appears that Appalachian women of all ages are not seeking medical care at the same rates as women in other parts of the state.

During the years 1982-1984, in the central Appalachian counties of Kentucky, 17.3 of every 1000 pregnant women sought no prenatal care at all. This compares with 14.1 for non-Appalachian counties and, surprisingly, 18.9 for the Appalachian fringe areas which would seem to have greater physical, though perhaps

Graph 2 Kentucky Teen-age Fertility by Region, 1980-1984

Live births to all teen-age mothers
per 1000 women-aged 15-19



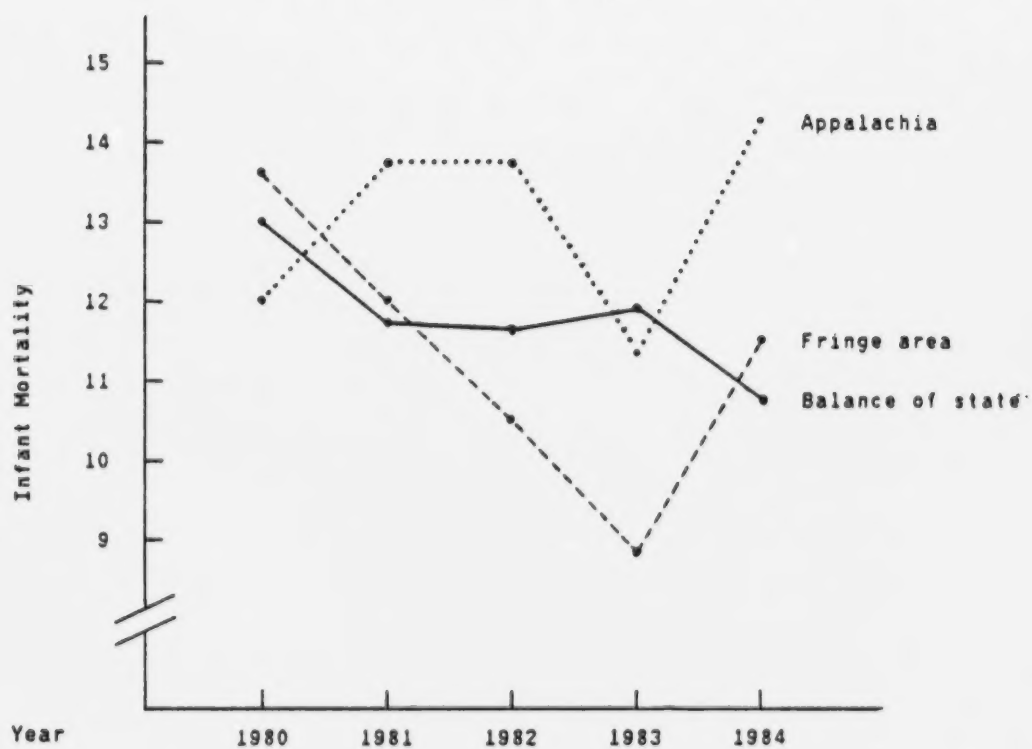
not economic, access to medical care. The national rate for this indicator was 15.2 in 1982. Furthermore, those women in the central Appalachian area who do seek prenatal care tend to seek it at a later stage of the pregnancy than women in either the fringe areas or in the rest of the state. (See Table 2 in Appendix I.)

As might be expected, the net result of high teen fertility and limited prenatal care is a higher than average infant mortality rate. During the years 1980-1984, in the central Appalachian counties of Kentucky, approximately 13 of every 1000 babies died before reaching one year of age. This compares with 11.3 for the Appalachian fringe counties, 11.8 for the rest of the state, and 11.4 nationwide. It should also be noted that, while the national infant mortality rate and the rate in non-Appalachian Kentucky counties and the Appalachian fringe area has dropped more or less steadily during the period 1980-1984, the rate in the Appalachian counties has actually risen. (See Graph 3 on page 10 and Table 3 in Appendix I. Individual county data is reported in Table 3 of Appendix I and illustrated on Map 4 in Appendix II.)

The rate for congenital anomalies is also higher in the eastern part of the state: 16.6 for the central Appalachian counties as compared to 12.4 in the fringe area and 11.5 in the rest of Kentucky. Although congenital anomalies are not directly related to teenage pregnancy or lack of prenatal care, prenatal and early postnatal care can lead to early diagnosis and treatment for these problems.

Graph 3 Kentucky Infant Mortality by Region, 1980-1984

Deaths for infants under one year
per 1000 live births



Two final comments on the issue of mother-infant care should be made. First, it is interesting to note that the problems of teenage pregnancy, late prenatal care and infant mortality in the almost totally white Appalachian population (blacks make up only 1.9%) is often paralleled among the general population of black Americans. Two characteristics that Appalachian Americans and black Americans have in common are high rates of poverty and unemployment. This strongly suggests that the root causes of mother/infant health problems are economic rather than racial or cultural. A comparison of Maps 1 and 2 with Maps 5 and 6 (Appendix II) illustrates the relationship between maternal/child health and poverty and unemployment.

Second, although government spending levels for family planning and teenage pregnancy services have fallen somewhat between 1980 and 1984, spending for some mother/child health services has actually risen on a statewide basis (Richart, 1983). With infant mortality rates rising in the the central Appalachian region, the question is raised concerning why it appears that increased spending has not yet impacted the easternmost portion of the state.

MORTALITY RATES

A chart listing mortality rates by cause of death (Table 2 in Appendix I) seems to indicate that residents of the central Appalachian region enjoy better health than their counterparts in the Appalachian fringe area where mortality rates are the highest in the state. With the exceptions of emphysema, diabetes, accidents, and homicide, mortality rates in the area appear to be lower than those in the rest of the state. This would mean that such problems as kidney disease, heart disease, hypertension, and cancer are actually less serious in the mountains.

However, when mortality rates are adjusted for age--that is, when the rates are given by specific age groups rather than by cause of death--the central Appalachian mortality rates are significantly higher than the rest of the state for every age group except those aged 75 and above. In contrast, the Appalachian fringe area has mortality rates which are significantly lower than the rest of the state for every age group except those 75 and older.

A number of interesting circumstances may be contributing to this phenomenon. As noted by the Appalachian Center Data Bank Report #3, "The Elderly in Appalachia," central Appalachia has a relatively small elderly population. Furthermore it is also

severely disadvantaged with respect to the availability of group homes for the elderly (nursing homes).

Although the report urges caution in interpreting these data, in light of the limited nursing home facilities, it may be that some elderly are being moved to nursing homes or the homes of relatives in other parts of the state. The Appalachian fringe area is, perhaps, a logical area into which many elderly mountain folk are moved.

This would account not only for the lower number of elderly living in the Appalachian central area, but also for the lower mortality rates for those degenerative diseases often associated with deaths in the elderly. If the elderly are moving out of the central Appalachian counties as they reach 75 and above, those mortality rates for emphysema and diabetes which are already higher than those in the rest of the state become even more significant.

Two other statistics are especially startling for the eastern portion of the state. Accidents (defined as any death caused by circumstances other than illness, homicide or suicide) accounted for 54.6 of every 1000 deaths in the central Appalachian counties and 47.7 in the fringe counties. This compares to 42.2 in the rest of the state. The high accident rate also correlates strongly with age-adjusted death rates in the 15-24 age group. These rates were 137.1 per 1000 in the central Appalachian counties, as compared with 98.2 in the Appalachian fringe

counties and 90.1 in the rest of the state. Likewise the homicide rate was significantly higher in the mountain counties: 11.0 deaths per 1000 compared to 6.6 in the fringe area and 7.0 in the rest of the state. (See Table 2 in Appendix I.)

The high homicide rate may indicate a deeper problem which was identified during research for this report. Although statistics on mental illness are not available on a county or regional basis, several mountain area health care deliverers reported severe depression, brought on by unemployment, poverty and the breakup of the family, as a leading cause of clinic visits. Significant depression was reported even among children. Since, as seen on Graph 1, page 6, the easternmost counties have only one mental health care worker per 13,422 people (as compared to a ratio of one to 3,323 in the balance of state) this problem is not being addressed in a meaningful way.

Unemployment and both physical and mental illness have been correlated in past studies (Bluestone, 1983), and more research is needed to identify the extent of this relationship and to train health care personnel to deal with the problem.

CONCLUSIONS

Some twenty years ago, one of the major goals of the Appalachian Regional Commission was to make health care more accessible to the people of the mountains. Today, a primary health care facility is within a thirty-minute drive of nearly all Appalachian counties. There has also been a substantial, though still inadequate, increase in health care professionals in the region. These two factors do, indeed, combine to make health care more physically accessible than it was in 1964. However, cutbacks in government spending, combined with an economic depression in the coal fields, threatens to create economic barriers to the continued improvement of health conditions in Appalachia.

The ARC stated in its fall 1985 report on the accomplishments of its health-care programs that it was "completing the finish up tasks assigned to it and leaving to other federal, state and local institutions the responsibility of maintaining and improving Appalachia's health care system." (Appalachia, 1985:31), "Others" must indeed pick up the continually escalating costs of medical care in Appalachia, but who will the others be? In an area of high unemployment and underemployment, many if not most people are simply unable to pay these increased costs from their own pockets or through job-related health benefits. Furthermore, the weak tax base of most mountain counties signifi-

cantly reduces the ability of local communities to provide medical care for their citizens. Funding for both federal and state health care programs face continued cutbacks.

Appalachians seem caught in a no-win situation regarding who will pay the health care bills. Local health care facilities often operate on a shoe string patched together with government and private money, volunteerism, and make-do medicine. Strong leadership and innovative planning are needed to solve this deepening problem.

This report has not attempted to be comprehensive. For example, there has been no discussion of environmental pollution and its effect on health in the mountains or the nutritional status of Appalachian people. Rather, this report has attempted to spot-check the pulse of health care in the mountain region. That pulse, which had improved during the 1970s, still lags far behind the stronger and steadier beat of health care in the rest of the state and the nation. Mortality rates show that eastern Kentuckians die younger than central and western Kentuckians and, under current economic conditions, have little prospect for improved conditions in the future.

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APPENDIX I

TABLES 1 - 4

TABLE I. Kentucky Health Personnel, Hospital Facilities, and Demand for Hospital Services, By Region, 1984.

	Eastern Kentucky	Appalachian Fringe	Balance of State
Persons per Licensed Physician			
Primary Care Specialties	1920.3	1866.3	1124.0
All Physicians	1137.9	1184.4	520.6
Persons per Licensed Dentist			
General Practice	3389.3	3110.4	2396.5
All Dentists	2981.5	2749.4	1748.5
Persons per Licensed Nurse			
Registered Nurses	305.3	239.6	148.3
Licensed Practical Nurses	311.9	390.3	356.5
All Nurses	154.3	148.5	104.7
Persons per Hospital Bed			
Acute Care Beds	322.7	301.0	211.3
Psychiatric Beds	8620.5	20528.8	2195.1
Persons per Licensed Mental Health Worker			
Psychiatrists	46652.1	153966.0	8885.1
Clinical Psychologists	27347.8	27993.8	10929.8
Clinical Social Workers	61006.5	43990.3	10324.9
All Licensed Mental Health Workers	13442.1	15396.6	3323.4
Hospitalization Rate			
Hospital Inpatients From Region per 1000 Population	172.5	164.2	148.7

TABLE II. Kentucky Vital Statistics by region, 1980 - 1984.
* Designates data available only for 1982 - 1984.

	Eastern Kentucky	Appalachian Fringe	Balance of State
Fertility			
General (Live births per 1000 women ages 15-44)	69.0	58.5	65.9
Teen-age (Live births to teen-age mothers per 1000 women ages 15-19)	81.8	60.7	59.8
Prenatal Care			
Began after first trimester* (Percent of total births)	31.4	24.8	22.8
No prenatal care* (Percent of total births)	1.7	1.9	1.4
Birth Anomalies			
Stillbirths* (Per 1000 total births)	8.3	10.0	8.3
Congenital anomalies* (Per 1000 live births)	16.6	12.4	11.5
Premature births (Percent of live births)	6.9	7.0	7.0
Post-natal Deaths			
Neonatal mortality (Per 1000 live births)	8.2	7.2	7.9
Infant mortality (Per 1000 live births)	13.0	11.3	11.8
Mortality Rates			
Crude* (Per 1000 general population)	9.0	9.4	9.2
Age-adjusted* (1980 Kentucky standard)	9.6	8.7	9.1
Age-specific (Per 100,000 in age group)			
Under 1 year*	1133.0	929.5	1070.8
1 - 4 years*	63.4	25.2	57.5
5 - 9 years*	29.4	23.4	22.2
10 - 14 years*	28.3	14.6	28.1
15 - 24 years*	137.1	98.2	90.1
25 - 34 years*	151.6	122.9	112.6
35 - 44 years*	298.2	262.4	224.6
45 - 54 years*	675.3	570.3	586.5
55 - 64 years*	1608.4	1300.3	1463.4
65 - 74 years*	3222.4	2900.4	3194.2
Over 75 years*	9568.3	9525.5	9594.0
By cause (Per 100,000 general population)			
Heart disease	346.7	378.8	348.2
Cerebrovascular disease	65.7	78.6	83.0
Arteriosclerosis	9.7	14.2	12.3
Cancer	173.2	184.5	200.5
Influenza & pneumonia	56.5	50.3	43.8
Diabetes	23.9	29.3	26.5
Emphysema	18.0	14.8	16.4
Accidents	6.7	4.6	6.1
Suicide	12.3	11.9	13.4
Homicide*	11.0	6.6	7.0
Cirrhosis*	7.6	5.8	10.3
Hypertension*	2.1	3.4	4.0
Nephritis & nephrosis*	8.8	11.1	8.9

TABLE III. Kentucky Vital Statistics by County, 1980 - 1984.
* Designates data available only for 1982 - 1984.

	Infant Mortality	Percent Premature	Teen-Age Fertility	Prenatal Care* Percent of all Births		Adjusted Mortality Rate*
				None	Late	
Eastern Kentucky:						
Bell	9.3	7.0	92.4	1.4	29.0	10.0
Boyd	11.4	6.2	55.5	2.6	18.2	9.3
Breathitt	13.6	6.9	80.3	1.7	42.9	9.5
Carter	16.0	7.0	75.0	3.0	32.9	9.7
Clay	14.6	9.1	97.4	3.3	40.3	8.4
Elliott	10.0	7.0	59.7	2.3	37.8	8.9
Estill	11.8	7.1	88.9	1.6	26.1	8.4
Floyd	12.2	7.2	88.8	0.5	26.6	9.8
Greenup	11.0	5.8	53.6	2.6	21.6	9.3
Harlan	13.5	7.0	97.1	0.9	33.4	10.5
Jackson	8.5	6.1	91.2	1.6	28.5	7.9
Johnson	10.8	6.0	85.6	0.9	34.5	9.9
Knott	14.2	5.7	93.8	0.8	29.2	9.3
Knox	12.0	7.8	87.0	1.9	46.9	9.9
Laurel	13.9	6.3	80.0	3.0	31.4	8.6
Lawrence	14.4	7.8	89.0	1.9	26.9	11.7
Lee	20.8	4.6	93.1	2.4	34.1	9.6
Leslie	15.1	6.5	93.7	2.1	41.7	9.1
Letcher	13.0	6.9	94.1	1.2	20.5	9.8
Lewis	10.4	5.8	78.7	3.3	29.2	10.6
Magoffin	7.6	6.7	109.9	1.6	40.6	9.1
Martin	16.5	7.4	89.8	1.2	35.7	9.7
McCreary	14.1	6.9	97.9	1.2	17.9	11.0
Menifee	27.1	8.7	92.6	2.3	38.9	11.8
Morgan	15.4	6.7	73.3	2.9	39.9	9.1
Owsley	9.8	7.6	92.6	3.8	40.3	9.3
Perry	14.4	7.3	92.7	1.0	31.7	10.2
Pike	14.4	7.4	81.2	0.5	28.0	10.0
Powell	9.4	6.9	85.5	5.1	36.6	9.2
Rockcastle	11.5	6.8	76.2	2.5	26.2	9.8
Rowan	8.6	5.9	30.5	2.3	38.0	8.4
Whitley	15.1	7.2	78.4	0.8	40.0	9.1
Wolfe	13.5	6.4	115.6	3.5	40.7	9.8

Infant mortality rate is deaths of persons age under one year per 1000 live births. A live birth is considered premature whenever the newborn weighs at most 2500 grams, regardless of estimated length of gestation. Teen-age fertility rate is live births to teen-age mothers per 1000 women age 15 to 19. Late prenatal care is that which does not begin in the first trimester; this is reported as the percentage of all births, including stillbirths. The age-adjustment of the mortality rate is to the 1980 Kentucky state-wide age distribution.

TABLE III. Continued.

	Infant Mortality	Percent Premature	Teen-Age Fertility	Prenatal Care* Percent of all Births		Adjusted Mortality Rate*
				None	Late	
Appalachian Fringe:						
Adair	12.5	7.3	71.4	1.1	24.1	9.2
Bath	12.7	7.2	73.3	3.2	41.0	8.5
Casey	13.5	6.6	83.3	1.8	29.3	8.2
Clark	13.6	6.9	75.4	3.9	29.1	8.3
Clinton	8.1	7.9	71.2	0.6	22.5	9.8
Cumberland	11.5	5.4	90.5	0.0	16.7	10.5
Fleming	6.0	7.9	64.1	2.5	35.2	9.1
Garrard	13.2	7.9	55.6	1.7	21.5	9.4
Green	11.3	8.4	65.5	0.3	26.1	8.2
Lincoln	13.8	7.8	74.4	3.3	24.8	9.6
Madison	9.6	6.3	30.6	0.8	20.1	8.2
Monroe	8.0	6.0	81.4	0.8	22.8	9.4
Montgomery	10.5	6.2	77.2	2.9	37.1	8.9
Pulaski	13.6	7.9	68.6	2.0	16.7	8.9
Russell	10.4	7.5	65.1	1.1	23.9	8.1
Wayne	8.8	6.7	74.3	1.8	26.1	8.2
Balance of State:						
Allen	12.1	6.9	77.9	1.7	25.7	9.4
Anderson	10.4	6.2	51.1	1.2	19.7	8.4
Ballard	12.6	6.9	50.7	0.0	9.1	9.2
Barren	6.1	6.6	61.8	0.2	15.9	8.6
Boone	8.7	5.4	48.1	1.3	5.8	9.7
Bourbon	15.9	7.0	64.5	3.7	30.6	8.7
Boyle	15.1	6.7	53.8	1.9	20.0	8.8
Bracken	13.8	9.3	60.1	1.3	27.4	9.9
Breckinridge	12.6	6.1	61.2	0.0	21.6	9.5
Bullitt	10.3	5.8	52.5	0.6	22.2	9.0
Butler	13.2	6.5	69.0	0.0	42.5	9.7
Caldwell	9.8	5.0	69.4	1.0	25.3	9.2
Calloway	7.2	5.5	29.0	0.3	19.2	8.7
Campbell	11.6	6.2	58.8	1.1	15.4	9.5
Carlisle	5.5	4.1	59.0	1.5	14.7	9.4
Carroll	13.4	9.2	83.4	2.3	34.5	10.2
Christian	16.1	7.7	100.9	2.8	49.0	9.9
Crittenden	16.6	5.7	59.2	0.3	18.9	9.1
Daviess	9.3	6.6	62.6	1.3	22.8	9.1
Edmonson	11.1	5.9	56.8	0.5	37.8	9.5
Fayette	11.2	7.1	46.9	4.2	26.9	8.8
Franklin	10.0	6.2	58.7	1.1	23.7	9.5
Fulton	8.7	10.6	82.9	0.7	23.7	10.0
Gallatin	8.7	11.4	60.4	2.4	23.5	10.4

TABLE III. Continued.

	Infant Mortality	Percent Premature	Teen-Age Fertility	Prenatal Care* Percent of all Births		Adjusted Mortality Rate*
				None	Late	
Grant	6.4	5.1	59.8	2.8	18.1	9.5
Graves	11.1	6.8	55.1	0.7	21.7	8.7
Grayson	11.6	6.3	76.7	0.9	26.6	8.7
Hancock	3.2	8.3	63.7	1.1	19.2	9.1
Hardin	14.5	7.1	84.9	1.7	34.8	8.7
Harrison	13.1	7.1	68.1	1.0	23.9	9.3
Hart	10.5	7.6	67.6	0.7	22.6	9.2
Henderson	9.7	7.8	67.8	0.9	30.4	8.9
Henry	10.4	6.3	60.7	1.1	27.9	9.5
Hickman	5.9	6.8	45.1	1.1	23.8	8.5
Hopkins	12.0	6.6	74.4	0.5	22.8	9.3
Jefferson	12.6	7.6	58.9	0.8	19.5	9.4
Jessamine	11.2	5.6	47.2	2.7	24.7	8.6
Kenton	14.1	5.8	58.9	2.0	7.6	9.3
Larue	12.8	8.1	62.7	1.7	29.3	8.0
Livingston	10.6	6.2	53.7	0.0	14.6	9.6
Logan	7.8	6.1	69.9	0.9	24.8	8.7
Lyon	11.7	5.4	38.7	0.0	15.6	9.6
Marion	13.8	9.3	57.7	1.1	16.0	9.1
Marshall	10.3	5.2	41.7	0.6	15.8	8.7
Mason	10.5	6.1	66.7	2.9	29.6	9.4
McCracken	9.8	6.6	57.1	0.4	23.8	9.2
McLean	9.8	3.9	71.5	1.5	21.0	7.9
Meade	11.5	6.4	83.5	1.1	31.0	8.6
Mercer	14.5	8.1	70.1	2.4	20.5	8.7
Metcalfe	16.3	7.4	69.8	1.5	22.1	8.0
Muhlenberg	12.5	6.5	74.0	0.6	21.1	9.1
Nelson	11.1	7.6	56.5	0.7	22.8	9.5
Nicholas	12.6	6.9	82.7	3.8	38.6	7.5
Ohio	6.5	7.8	74.9	0.4	25.0	8.4
Oldham	12.4	5.5	37.2	0.8	14.3	8.7
Owen	10.8	6.6	74.5	4.0	36.3	8.8
Pendleton	8.8	6.0	68.9	0.6	14.1	9.2
Robertson	0.0	8.6	54.6	1.3	34.2	8.9
Scott	15.7	6.4	57.8	2.0	33.3	8.5
Shelby	9.8	7.4	60.2	0.8	26.7	8.3
Simpson	15.8	6.5	88.0	1.3	25.9	9.0
Spencer	2.5	8.0	71.4	0.4	17.0	9.4
Taylor	11.4	6.5	55.0	0.9	16.6	8.2
Todd	6.1	6.9	74.0	2.1	44.0	8.9
Trigg	7.0	8.4	60.5	1.9	35.1	9.5
Trimble	12.4	6.4	64.2	1.3	25.1	9.0
Union	8.2	8.0	52.9	1.1	31.0	9.0
Warren	11.7	6.5	41.3	0.2	35.4	8.9
Washington	9.5	8.0	55.4	0.7	21.9	8.5
Webster	16.1	8.8	85.8	0.4	30.4	8.9
Woodford	8.5	6.7	44.8	3.5	24.4	8.2

TABLE IV. Health Personnel, Hospital Facilities, and Demand for Hospital Services, By County, 1984.
Note: Missing entries indicate that the service is not available in the county.

	Hospital Inpatients Per 1000 Population	Persons Per Acute Bed	Persons Per Licensed Nurse	Persons Per Licensed Physician	Persons Per Licensed Dentist
Eastern Kentucky:					
Bell	239.2	127.4	107.6	597.4	2865.2
Boyd	182.6	131.0	83.1	495.6	1528.0
Breathitt	140.1	.	253.8	2393.5	4188.5
Carter	147.3	.	272.1	5115.1	3197.0
Clay	185.9	450.5	214.9	1464.1	3346.4
Elliott	90.7	.	316.3	2319.6	1739.8
Estill	152.4	572.3	316.6	2976.2	3720.0
Floyd	234.3	214.5	110.8	937.6	3164.6
Greenup	120.3	.	141.1	2761.7	2577.7
Harlan	199.2	268.2	124.3	1093.6	4265.0
Jackson	153.6	.	618.2	2060.6	6162.0
Johnson	177.6	354.5	126.4	850.8	2836.1
Knott	172.4	.	126.3	3661.7	6103.3
Knox	197.7	521.9	208.7	2328.3	4324.0
Laurel	156.8	744.9	226.3	2409.6	3413.9
Lawrence	172.5	162.0	165.7	694.2	2082.6
Lee	141.3	.	460.5	3913.9	3014.5
Leslie	164.7	387.0	154.8	1190.9	5160.3
Letcher	227.6	204.8	133.6	973.0	2594.7
Lewis	60.8	.	470.8	4863.8	4864.7
Magoffin	206.8	.	520.7	2343.0	3514.5
Martin	160.1	.	486.5	1621.5	2918.8
McCreary	111.9	.	431.7	2662.4	3993.5
Menifee	146.7	.	255.5	5364.8	.
Morgan	152.8	408.7	299.0	2452.2	3065.0
Owsley	130.8	.	811.6	2840.1	5681.0
Perry	211.6	256.9	110.6	812.6	3176.6
Pike	168.8	240.7	170.3	1028.0	3330.7
Powell	140.3	.	332.5	2908.7	3878.7
Rockcastle	179.7	545.5	240.4	3546.1	2836.4
Rowan	106.9	127.5	65.9	562.3	2389.8
Whitley	131.9	252.0	161.0	772.7	1931.7
Wolfe	186.3	.	465.7	2328.3	6985.0

TABLE IV. Continued.

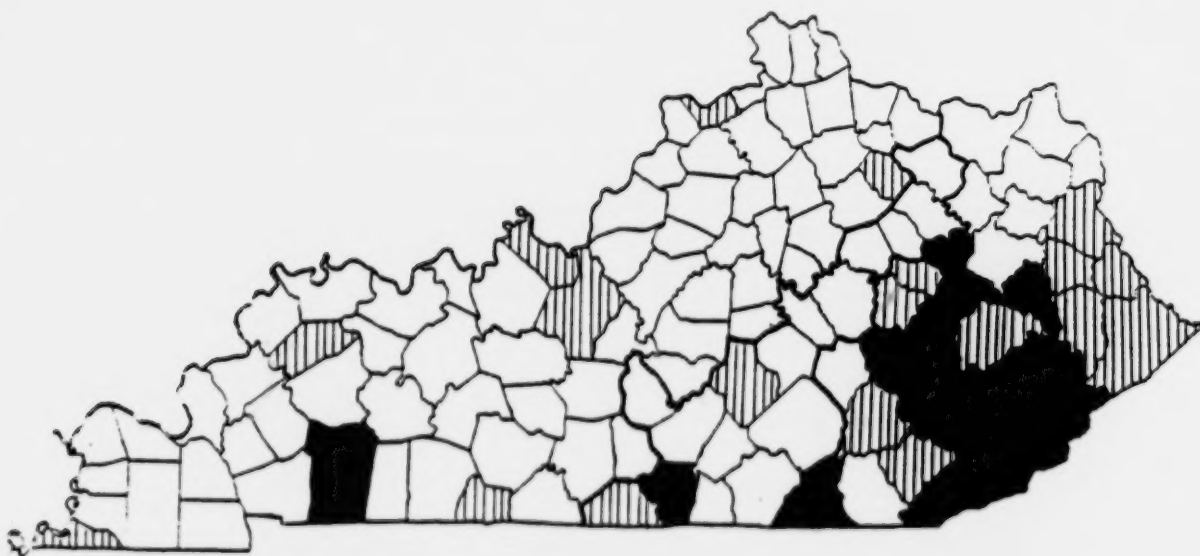
	Hospital Inpatients Per 1000 Population	Persons Per Acute Bed	Persons Per Licensed Nurse	Persons Per Licensed Physician	Persons Per Licensed Dentist
Appalachian Fringe:					
Adair	186.8	238.0	171.9	1289.3	3084.2
Bath	135.6		183.9	2060.2	5150.5
Casey	130.9	627.0	198.0	1881.1	5016.3
Clark	143.5	288.4	155.9	1109.4	1696.6
Clinton	282.9	232.4	212.2	2440.2	1952.0
Cumberland	350.1	238.5	199.8	2464.9	2464.7
Fleming	205.3	238.7	126.7	2069.1	4138.0
Garrard	175.1	232.6	132.5	2278.9	3798.7
Green	185.4	247.3	164.9	989.3	3627.3
Lincoln	166.7	448.1	125.9	2140.9	3853.8
Madison	132.3	292.9	118.3	860.1	2852.1
Monroe	241.3	251.7	192.7	1541.8	3083.5
Montgomery	144.7	235.8	169.0	881.7	1689.8
Pulaski	136.3	269.6	122.7	872.6	2399.7
Russell	148.5	331.0	201.3	1654.8	3723.3
Wayne	183.0	582.1	236.0	1343.4	4366.0
Balance of State:					
Allen	199.4	266.7	166.3	1570.6	2019.3
Anderson	118.8		175.2	2593.4	2593.2
Ballard	172.7		122.1	2106.6	8426.0
Barren	167.2	164.3	102.4	725.6	3166.3
Boone	121.6	355.4	102.9	882.1	1452.8
Bourbon	159.6	320.9	164.6	1375.5	2407.0
Boyle	151.7	208.2	71.4	489.8	1561.3
Bracken	156.5		146.1	1519.3	3798.0
Breckinridge	172.7	371.4	232.1	1519.5	3342.8
Bullitt	119.9		244.9	3673.8	4407.9
Butler	168.1		197.7	3756.6	3756.7
Caldwell	163.3	197.5	126.7	1343.4	2238.8
Calloway	170.3	165.2	105.4	773.7	1729.5
Campbell	128.7	256.9	102.4	801.0	2817.2
Carlisle	192.8		129.0	5291.0	5291.0
Carroll	178.3	176.1	179.4	1585.0	3170.0
Christian	94.7	295.0	125.5	808.7	2847.9
Crittenden	255.1	243.2	204.5	1499.9	4499.5
Daviess	186.6	153.8	92.0	636.4	1792.3
Edmonson	111.4		347.1	2690.3	10761.0
Fayette	114.1	111.1	59.8	181.4	850.7
Franklin	143.6	166.2	139.5	699.6	2409.9
Fulton	148.3	204.0	220.2	697.2	1673.2
Gallatin	160.3		408.0	2448.0	4896.0

TABLE IV. Continued.

	Hospital Inpatients Per 1000 Population	Persons Per Acute Bed	Persons Per Licensed Nurse	Persons Per Licensed Physician	Persons Per Licensed Dentist
Grant	182.9	463.6	158.0	2781.6	4635.7
Graves	190.8	285.4	135.2	1379.7	2759.3
Grayson	208.6	287.3	175.2	1347.0	3591.8
Hancock	142.2		171.8	8077.5	2691.7
Hardin	90.0	460.3	171.1	906.8	3126.9
Harrison	188.6	174.0	132.4	1106.2	2212.4
Hart	167.2	511.1	151.8	2555.6	3066.4
Henderson	179.2	195.9	98.7	695.5	2318.4
Henry	147.2		234.4	2626.1	2625.8
Hickman	194.2	141.2	186.7	1447.2	2894.5
Hopkins	175.5	120.6	86.7	437.4	2228.8
Jefferson	156.3	173.0	92.1	336.7	1258.9
Jessamine	101.6		102.3	1539.9	2519.7
Kenton	126.0	270.5	96.1	581.4	2345.6
Larue	155.4		159.9	2999.4	3998.7
Livingston	292.0	357.1	104.3	1547.5	3095.0
Logan	121.3	231.6	186.7	1667.8	4169.2
Lyon	146.5		161.2	2150.1	3225.0
Marion	155.2	236.5	157.0	1774.0	2956.5
Marshall	169.7	561.4	113.8	1721.8	2869.6
Mason	170.3	156.1	109.7	912.2	2166.5
McCracken	169.0	88.3	71.3	426.6	1660.4
McLean	169.2	382.2	104.6	3312.4	3312.0
Meade	81.1		300.8	2820.1	7521.0
Mercer	181.5	236.5	103.4	1182.7	2703.3
Metcalfe	180.6		173.0	4928.5	2464.8
Muhlenberg	188.3	302.5	109.5	1512.6	3970.9
Nelson	159.7	545.2	161.1	1667.8	3150.1
Nicholas	219.8	257.2	167.5	1440.3	2400.7
Ohio	192.7	314.8	150.7	2675.9	2378.3
Oldham	101.6		111.9	2086.4	2086.2
Owen	175.9	183.4	254.8	3057.2	3057.3
Pendleton	140.6		272.5	3632.4	5449.5
Robertson	165.9		129.6		2333.0
Scott	127.1	289.7	124.9	1448.4	2715.8
Shelby	149.0	314.9	199.4	1495.9	2393.3
Simpson	159.6	297.9	236.4	2482.0	1861.6
Spencer	134.9		273.3	3005.7	3006.0
Taylor	174.8	240.9	228.2	1140.9	2167.8
Todd	100.2		205.1	2768.5	5536.5
Trigg	196.9	233.1	121.1	2331.0	2330.8
Trimble	88.7		329.3	2085.5	2085.7
Union	168.1	330.8	162.4	1276.0	2552.1
Warren	137.1	155.9	114.7	666.6	1607.7
Washington	146.1		169.6	2102.6	3504.3
Webster	161.1		126.3	2463.1	3695.0
Woodford	143.8	259.4	94.0	969.3	1315.5

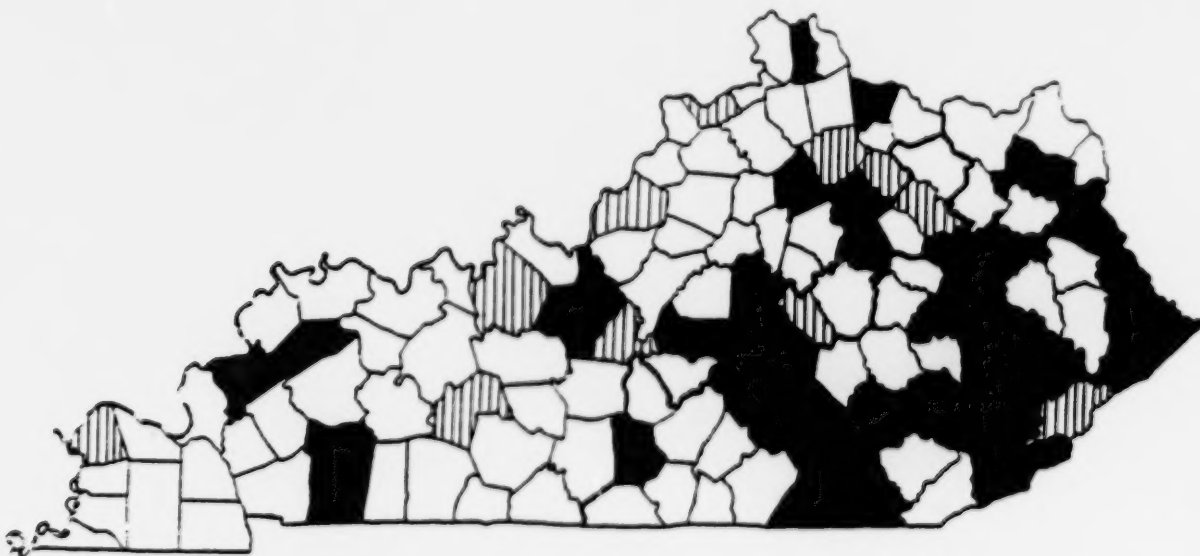
APPENDIX II

MAPS 1 - 6



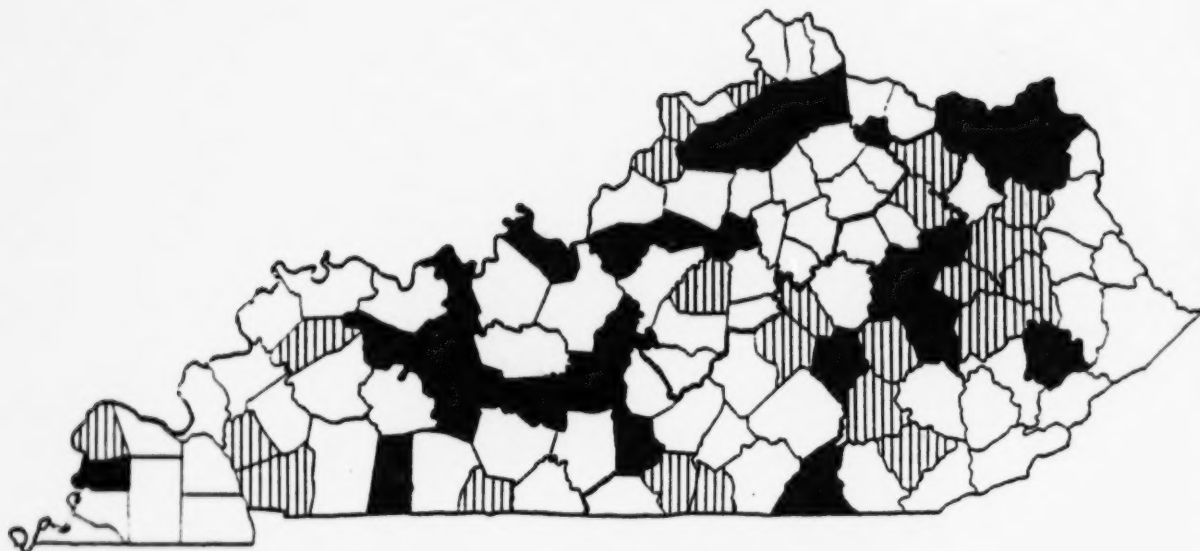
Map 1 Counties with Highest Teen-age Fertility, 1980-1984

Shaded counties have a fertility above 100 live births to teen-age mothers per 1000 women aged 15-19; counties with vertical lines have rates between 90 and 99.9.



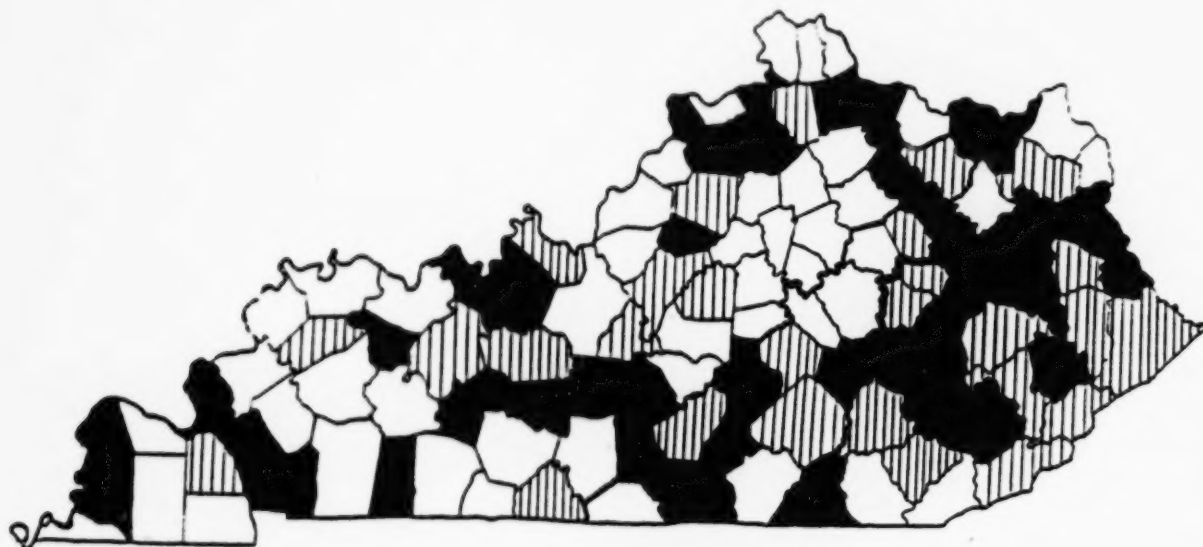
Map 2 Counties with Highest Infant Mortality Rates, 1980-1984

Shaded counties have rates above 13.5 infant deaths per 1000 live births; counties with vertical lines have rates between 12.5 and 13.4.



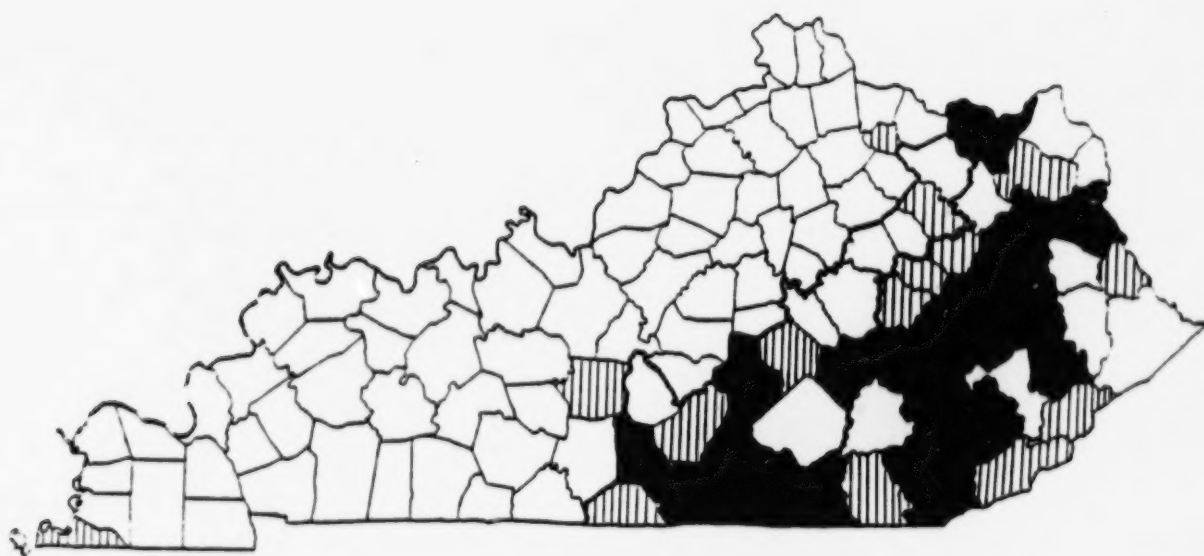
Map 3 Counties with Physician Shortages, 1984

Shaded counties have more than 2500 persons per licensed physician; counties with vertical lines have between 2000 and 2499.



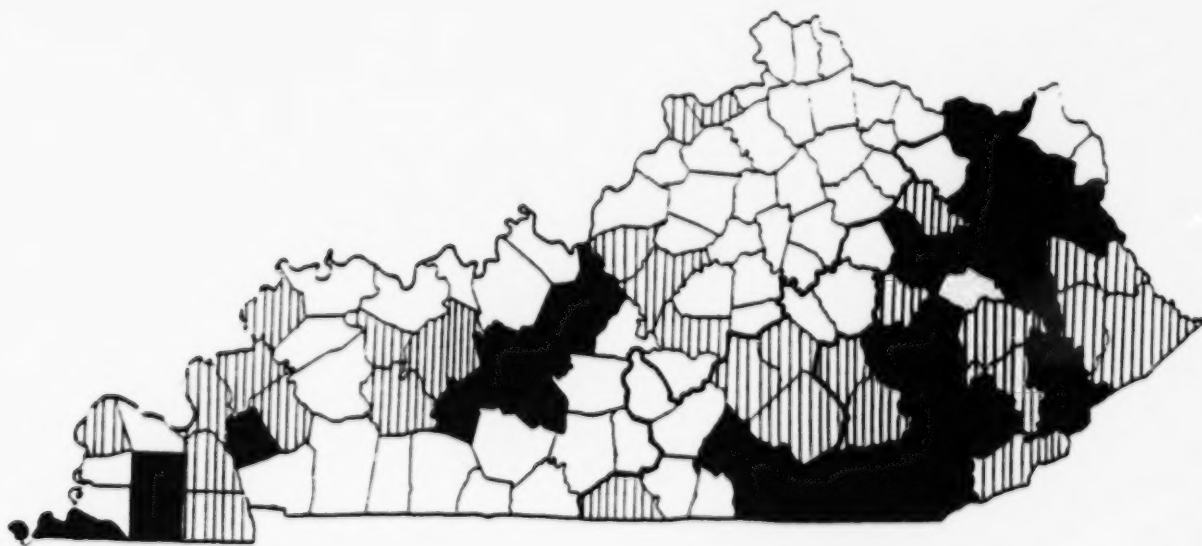
Map 4 Rural Counties, 1980

In shaded counties, the entire population is rural; counties with vertical lines may have as much as 30% in urbanized areas.



Map 5 Poverty Rates, 1979

In shaded counties, at least 30% of the population is below the poverty level; counties with vertical lines have poverty rates between 25% and 29.9%.



Map 6 Unemployment Episodes, 1979

In shaded counties, at least 25% of the labor force had some episode of unemployment; counties with vertical lines have rates between 22% and 24.9%.